

Work Order ID 83702

83702

Page 1

April-23-12 4:01:31 PM

Item ID: D206-667-101

Accept

N900040100

Setup Start *NS1*

Revision ID:

Item Name: Crosstube Fwd

Stop *NS2*

Start Date: 23/04/2012 Start Qty: 1.00

1

Cust Item ID:

Required Date: 07/05/2012 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals:

Process Plan: MLS

Date: 12/04/24

Tooling:

Date:

Run Start *NR1*

QC:

Date:

SPC (Y/N):

Date:

Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

Draw Nbr

Revision Nbr

D206-667-141

Rev C (DEO)

DSI9565

A

100

0.00

100

DOCUMENT CONTROL

DC

Memo

0.00

Document Control

Photocopy bluefile and create labels as per PPP D206-667-101 CHG004

5/2/05/07

MLS 12/05/07

110

0.00

110

Packaging

Packaging

Memo

0.00

Packaging

DP 12-4-30

B83702 D206-667-101

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Work Order ID 83702

83702

Page 2

April-23-12 4:01:31 PM

Item ID: D206-667-101

Accept

N9000040100

Setup Start *NS1*

Revision ID:

Stop *NS2*

Item Name: Crosstube Fwd

Start Date: 23/04/2012 Start Qty: 1.00

1

Cust Item ID:

Required Date: 07/05/2012 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run Start *NR1*

Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
120	BENDING MACHINE - CROSSTUBES	0.00							
120									
CNC Bend 1	Memo	0.00							
CNC Delta 100 Bender	Bend tube as per Dwg D206-667-141 using CNC bender program 206B-fw and Folio FT _____								
130	QC15- Crosstube Dimensional Check	0.00							
130									
QC	Memo	0.00							
Quality Control									

DP 12-4-30

Enlola

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Work Order ID 83702

83702

Page 3

April-23-12 4:01:31 PM

Item ID: D206-667-101

Accept

N9000040100

Setup Start ***NS1***

Revision ID:

Stop ***NS2***

Item Name: Crosstube Fwd

Start Date: 23/04/2012 Start Qty: 1.00

1

Cust Item ID:

Required Date: 07/05/2012 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start ***NR1***

QC:

Date:

SPC (Y/N):

Date:

Stop ***NR2***

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID

Tool #

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

140

0.00

140

Crosstubes

0.00

Crosstubes

Memo

1-Drill holes & ream using drill Jig DT8541 & DT8542 as per Dwg D206-667-141. Drill all (3) top holes.

3-Flip tube and switch drilling Jigs from right to left, left to right. Locate Jigs off existing holes using "T" pins.

4-Drill pilot holes using drill Jig DT8541 & DT8542 as per Dwg D206-667-141. Drill only the top (2) holes.

5-Drill pilot holes as per Dwg D206-667-141. Drill only the top (2) holes.

6-Drill Fwd rivet holes using drill Jig DT8787FWD as per Dwg D206-667-141. Note: Fwd side has 3x top holes.

7-Drill Aft rivet holes using drill Jig DT8787AFT as per Dwg D206-667-141.

8-C'sink holes as per Dwg D206-667-141. Allow rivet to sit below surface to compensate for paint.

9-Scribe part # and batch # using vibrating stylus as per Dwg D206-667-141 Inside of Cuff (Do not engrave on outside of tube)

10-Deburr & Inspect for surface damage. Repair damage within limits as per Dwg D206-667-141

MO/2M

12-5-1

MO

12-5-1

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Work Order ID 83702

83702

Page 4

April-23-12 4:01:31 PM

Item ID: D206-667-101

Accept

N9000040100

Setup Start *NS1*

Revision ID:

Stop *NS2*

Item Name: Crosstube Fwd

Start Date: 23/04/2012 Start Qty: 1.00

1

Cust Item ID:

Required Date: 07/05/2012 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start *NR1*

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

150 Crosstubes Chemical Conversion

0.00

150

HandFXtube

Memo

0.00

Hand Finishing Crosstubes

160 QC3- Inspect Part Finish

0.00

160

QC

Memo

0.00

Quality Control

170 QC5- Inspect part completeness to step on W/O

0.00

170

QC

Memo

0.00

Quality Control

POSITIVE RECALL

EFFECTIVE 12.05.04

RELEASED 12.05.04

AUTH

DATE

crashy

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

83702

April-23-12 4:01:31 PM

Accept

N900040100

Setup Start *NS1*

Stop *NS2*

Start Date: 23/04/2012 **Start Qty:** 1.00 ***1***

Cust Item ID:

Required Date: 07/05/2012 **Req'd Qty:** 1.00 *** 1 ***

Customer:

Reference:

Approvals: **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____

Run Start *NR1*

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop *NR2*

180	Outsource process - NDT per QSI038 4.1	0.00	-
-----	--	------	---

180

Outsource2

Outsource process - NDT

Outsource process - NDT per QSI038 4.1

0.00

Memo

0.00

Liquid Penetrant Inspection as per QSI 038Or
Issue P/O: 16903 LPI as per ASTM 1417
Level 2 Attach copy of NDT results to work order

190

0.00

190

Packaging

Packaging

Packaging

Memo

0.00

Ensure copy of NDT results attached to work order.

200

QC5- Inspect part completeness to step on W/O	0.00
---	------

0.00

200

QC

Quality Control

Memo

0.00

Inspect for damage & ensure results are as per Dwg D206-667-103

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Work Order ID 83702

83702

Page 6

April-23-12 4:01:31 PM

Item ID: D206-667-101

Accept

N900040100

Setup Start *NS1*

Revision ID:

Stop *NS2*

Item Name: Crosstube Fwd

Start Date: 23/04/2012 Start Qty: 1.00

1

Cust Item ID:

Required Date: 07/05/2012 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start *NR1*

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

210

0.00

210

SprayPaint

SprayPaint

Memo

0.00

Spray Painting

1-Prime inside and outside crosstube as per QSI 005 4.2.1
*****Let tube sit up right for 30mins before hanging*****

P4500-P-23 Base Batch: 121334

P4500-C-23 Catalyst Batch: 120133

Start time: 6:30 Finish: 7:15

AG 12-5-5

230

0.00

230

SprayPaint

SprayPaint

Memo

0.00

Spray Painting

1-Paint outside crosstube with White Imron as per QSI 005
4.2

Imron 55U white paint Batch: 120985

Imron 125S activator Batch: 121297

Start: 11:15 Finish: 12:00

Clear: 121623
Start: 4:45
Finish: 5:30★ CLEAR COAT PER
ATTACHED INSTRUCTION
CP 12.05.04

AG 12-5-5

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

83702

April-23-12 4:01:31 PM

Accept

N900040100

Setup Start *NS1*

Stop *NS2*

Start Date: 23/04/2012 **Start Qty:** 1.00

*** 1 ***

Cust Item ID:

Required Date: 07/05/2012 **Req'd Qty:** 1.00

*** 1 ***

Customer:

Reference:

Approvals: **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____

Run Start *NR1*

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop ***NR2***

Operation Description

Set Up/ Run Hours

Tool ID

Tool #

Plan
Code

Accept	Qty
--------	-----

Reject
QtyReject
Number

**Insp.
Stamp**

240

QC14- Inspect Spray Paint

0.00

240

QC

Memo

0.00

Quality Control

250

0.00

250

Crosstubes

Crosstubes

Memo

0.00

Crosstubes

1-Abrade mating surfaces of support and crosstube with 400 grit sandpaper, clean the area with 4105S wash 'n' wipe

2-Install supports with Proseal 890 per DSI9565 and QSI 015

A/R Proseal 890 Batch: 121287

3- Torque bolts as per dwg

3-Install nut plates as per Dwg D206-667-141. Touch-up rivet heads with Imron paint.

AR 12-5-6

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

83702

* April-23-12 4:01:31 PM

Accept

N900040100

Setup Start *NS1*

Stop *NS2*

Cust Item ID:

Start Date: 23/04/2012 **Start Qty:** 1.00

*** 1 ***

Required Date: 07/05/2012 **Req'd Qty:** 1.00

*** 1 ***

Customer:

Reference:

Run Start *NR1*

Approvals: **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____

Stop *NR2*

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Operation Description

Set Up/ Run Hours

Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
---------	--------	-----------	------------	------------	---------------	-------------

QC5- Inspect part completeness to step on W/O

0.00

260

0.00 Sidorov

QC

Memo

0.00

Quality Control

Pick Kit

0.00

270

Packaging

Memo

0.00

Packaging

QC4- 100% Inspect kits for completeness

0.00

280

0.00 8.7100

QC

Memo

0.00

Quality Control

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Work Order ID 83702

83702

Page 9

April-23-12 4:01:31 PM

Item ID: D206-667-101

Accept

N900040100

Setup Start *NS1*

Revision ID:

Item Name: Crosstube Fwd

Stop *NS2*

Start Date: 23/04/2012 Start Qty: 1.00

1

Cust Item ID:

Required Date: 07/05/2012 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start *NR1*

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
290	Packaging	0.00							
290									
Packaging	Memo	0.00							
Packaging	Identify and pack for shipping as per PPP D206-667-101								
	Location: _____								
	PPP Rev: <u>63</u>								
300	QC21- Final Inspection - Work Order Release	0.00							
300									
QC	Memo	0.00							
Quality Control									

Handwritten signature

MLJ 12/05/07

MF 12-05-07

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

April-23-12 4:01:35 PM

Page 1
4

Work Order ID: 83702

83702

Parent Item: D206-667-101

D206-667-101

Parent Item Name: Crosstube Fwd

Start Date: 23/04/2012

Required Date: 07/05/2012

Start Qty: 1.00

Required Qty: 1.00

Comments:

IPP Rev:F05.09.01Add holes for compatibility with Bell SkidtubesKJ/JLM
IPP Rev:G 08-06-03 update as per DSI9415 (ECN1198) DD verified by:ec
IPP Rev:H 08-07-28 update as per (par 08-013) DD verified by:EC
IPP Rev J 09.01.06 Per ECN 08-562 EC verified by:DD IPP REV:K
11.08.05 PER ECN 11-615 DD VERF:EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D2873-043		Manufactured	No			250	Each	18.0000	2	2			
D2873-043									**			AS 12-5-6	
Nut Plate Assembly													
				<u>Location</u>				<u>Loc Qty</u>					
				LG052				18					
				72644				2					
				81502				16		2			
D2873-045		Manufactured	No			250	Each	11.0000	2	2			
D2873-045									**			AS 12-5-6	
Nut Plate Assembly													
				<u>Location</u>				<u>Loc Qty</u>					
				LG052				11					
				81425				11		2			
D2891-1		Manufactured	No			250	Each	28.0000	2	2			
D2891-1									**			AS 12-5-6	
2.25 Support													
				<u>Location</u>				<u>Loc Qty</u>					
				LG052				28					
				72822				1					
				75176				1					
				80160				6		1			
				82277				20		1			

W/O:		WORK ORDER CHANGES							
DATE	STEP	PROCEDURE CHANGE			By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

April-23-12 4:01:35 PM

Page 2

Work Order ID: 83702

83702

Parent Item: D206-667-101

D206-667-101

Parent Item Name: Crosstube Fwd

Start Date: 23/04/2012

Required Date: 07/05/2012

Start Qty: 1.00

Required Qty: 1.00

D3595-063-395

Manufactured No

250

Each

70.0000

4

4

D3595-063-395

RUBBER CUSHION

**

AP 12-5-6

Location

Loc Qty

Loc Code

LG051

70

82223

70

(4)

MS20601-AD4W8

Purchased

No

250

Each

128.0000

14

14

MS20601-AD4W8

RIVET

**

AP 12-5-6

Location

Loc Qty

Loc Code

LG051

78

121017

78

(3)

ST322

50

121255

50

(11)

AN5-30A

Purchased

No

270

Each

89.0000

4

4

AN5-30A

BOLT

**

AP 12/6/12

Location

Loc Qty

Loc Code

ST339

89

117514

7

120423

27

120910

25

121259

30

125423

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

April-23-12 4:01:35 PM

Page 3

Work Order ID: 83702

83702

Parent Item: D206-667-101

D206-667-101

Parent Item Name: Crosstube Fwd

Start Date: 23/04/2012

Required Date: 07/05/2012

Start Qty: 1.00

Required Qty: 1.00

AN5-32A

Purchased

No

270

Each

204.0000

4

4

**

AN5-32A

Bolt

Location

Loc Qty

Loc Code

ST339

204

119328

39

119862

50

120423

75

120910

30

121415

10

119328

AN5-7A

Purchased

No

270

Each

2,633.000

10

10

**

AN5-7A

Bolt

Location

Loc Qty

Loc Code

ST337

2633

119017

2633

119017

AN960JD516

NAS1149D0563J

Purchased

No

270

Each

0.0000

18

18

**

AN960JD516

Washer

MS21042L5

Purchased

No

270

Each

1,351.000

4

4

**

MS21042L5

Nut

Location

Loc Qty

Loc Code

ST300

1351

116105

5

116548

43

117611

30

119109

1273

119109

April-23-12 4:01:35 PM

Shop Packet Print

Page 3

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

April-23-12 4:01:35 PM

Page 4

Work Order ID: 83702

83702

Parent Item: D206-667-101

D206-667-101

Parent Item Name: Crosstube Fwd

Start Date: 23/04/2012

Required Date: 07/05/2012

Start Qty: 1.00

Required Qty: 1.00

MS21920-20

Purchased

No

270

Each

128.0000

4

4

MS21920-20

Clamp (per MIL-DTL-8783C)

**

AP 12-5-6

Location

Loc Qty

Loc Code

LG050

128

116799

8

120676

20

121067

50

121274

50

D206-667-101TRN

Manufactured

No

110

Each

0.0000

1

1

D206-667-101TRN

Crosstube Turning Detail

**

DP 12-4-30

81950

①

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

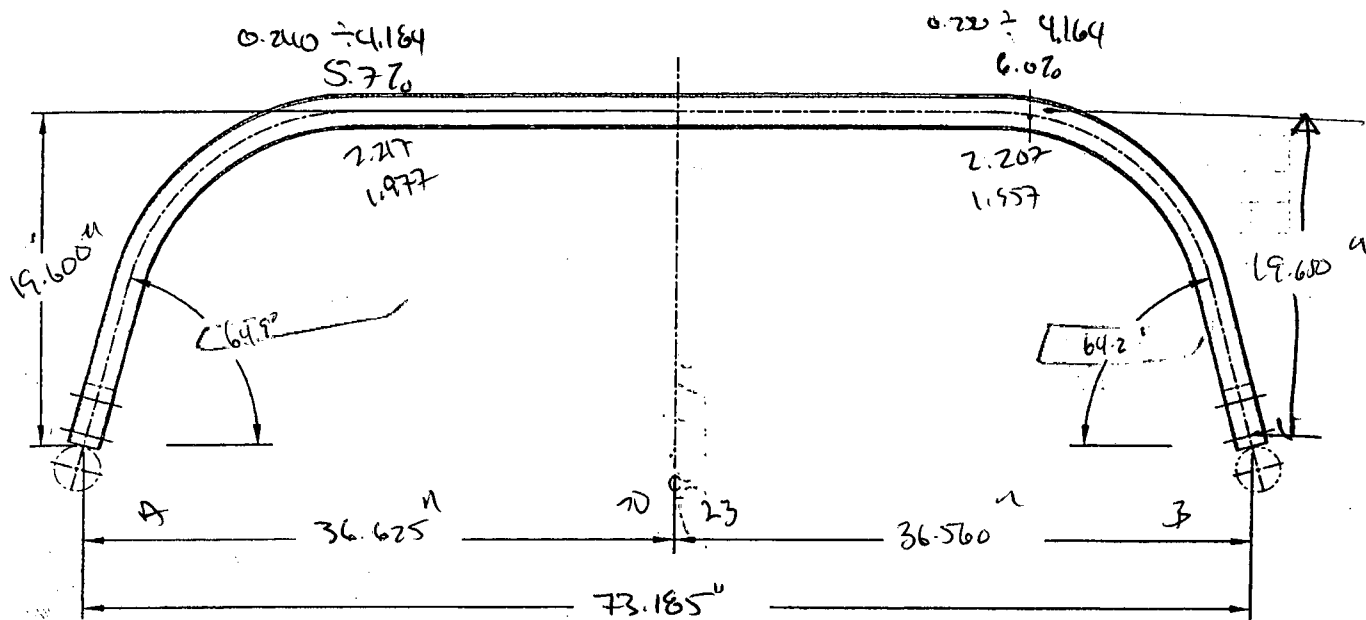
Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

DART AEROSPACE LTD		Work Order:	83702
Description: Crosstube High Fwd (206B)		Part Number:	D206-667-101
Inspection Dwg: D206-667-141 Rev: C		Page 1 of 1	

Required Dimension	Min	Max
Height	19.41	19.67
1/2 Span	36.47	36.73
Angle	65	67
Total Span	72.94	73.46



Comments
SIM A = 5.770 crash @ 20 Passes
S112 B = 6.070 crash @ 23 Passes
OK CP 12.05.06 P51042

QC15 Inspection	S
Date	relator

Rev	Date	Change	Revised by	Approved
A	07.02.06	New Issue	KJ/JM	
B	09.07.30	Dimensions revised per Dwg Rev C	KJ	

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

DART SERVICE INSTRUCTION

TO AMEND INSTRUCTIONS FOR CONTINUOUS AIRWORTHINESS ICA-D206-667 Rev. 3 OR LATER

REF. CANADIAN STC: SH01-5

REF. FAA STC: SR01304NY

REF. EASA STC: EASA.IM.R.S.01179

PURPOSE:

The supports on the following crosstubes are now installed using Proseal instead of Magnobond:

D206-667-101 @ CHG 004
D206-667-103 @ CHG 005
D206-667-107 @ CHG 002
D206-667-201 @ CHG 004

D206-667-203 @ CHG 004
D206-667-207 @ CHG 002
D407-667-105 @ CHG 004

CHANGE:

For the crosstubes listed above, section 32.4 of ICA-D206-667 is amended as follows. Use Figures 32-4 to 32-8 of ICA-D206-667 for further reference. For crosstubes of an earlier change number, it is recommended that if the supports are removed, the supports should be reinstalled using the procedure listed below.

32.4 SUPPORT INSTALLATION

- 32.4.1 Locate the area on crosstube for installation of support (ref. Figures 32-4 to 32-8 of ICA-D206-667). For D206-667-101/-103/-107/-201 and D407-667-105 crosstubes, the outward face of the support tabs should be 13.08" (332mm) from the crosstube center. For D206-667-203/-207 crosstubes, the outward face of the support tabs should be 10.03" (255mm) from the crosstube center. Ensure paint finish of crosstube is intact; touch up as required per Chapter 5 (5.3.9) of ICA-D206-667.
- 32.4.2 If present, remove any paint/primer on bottom of supports. Abrade mating surfaces of support and crosstube with 400-grit sandpaper. Saturate a clean cloth with MEK or 4105S Wash'n'Wipe Degreaser or equivalent and wipe until there is no residue.
- 32.4.3 Ensure a layer of 3M Scotch-Weld 2216 B/A Epoxy Adhesive is on the bottom of the support. If required, either apply or touch-up support to have a 0.03" to 0.05" thick layer of adhesive over the entire mating surface. Allow supports to cure for 24 hours.
- 32.4.4 Abrade mating surfaces of support (after cure) and crosstube with 180-grit sandpaper. Saturate a clean cloth with MEK or 4105S Wash'n'Wipe Degreaser or equivalent and wipe until there is no residue.
- 32.4.5 Apply a 0.04" to 0.07" thick layer of Proseal 890 Class B or AMS-S-8802 Class B sealant underneath applicable support and install support.
- 32.4.6 Install the clamps opposite to crosstube support as shown in Figures 32-4 to 32-8 of ICA-D206-667. Install rubber cushions underneath each clamp around the bottom circumference of the crosstube up to the crosstube centerline. Torque clamps 80-100 in-lb (9.0-11.3 Nm). It is acceptable to use smaller or larger sized MS21920-XX clamps than those listed in ICA-D206-667, ensure that after torquing the clamps per this instruction, the nuts are in safety but not bottomed out.
- 32.4.7 Prior to installing crosstube on aircraft, allow supports to cure for 72 hours and recheck torque on clamps.

CANADA
DEPARTMENT OF TRANSPORT
AIRCRAFT CERTIFICATION
BRANCH
DAO # 01-O-01





APPROVED

BY: 
D. SHEPHERD (DE # 02)

DATE: 11.07.20

CERT. NO.: SH01-5

ISSUE NO.: 3

A	NEW ISSUE	CP	11.07.15
REV.	DESCRIPTION	BY	DATE
DESIGN		DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN			
CHECKED	ASS	DRAWING NO.	REV. A
MFG. APPR.	N/A	DSI 9565	SHEET 1 OF 1
APPROVED		TITLE	SCALE
DE APPR.		SUPPORT INSTALLATION CHANGE	NTS
DATE	11.07.15	COPYRIGHT © 2011 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	

UNCONTROLLED COPY
ENGINEERING
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 83262 AC5
12/07/20

SHOP COPY
RETURN TO

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Item	Qty -141	Part Number	Description
1	X	D206-667-141	CROSSTUBE ASSEMBLY (206B HIGH FWD)
2	1	D6001-105	CROSSTUBE
3	2	D2873-043	NUT PLATE
4	2	D2873-045	NUT PLATE
5	2	D2891-1	SUPPORT
6	4	D3595-063-395	RUBBER CUSHION
7	4	MS21920-20	CLAMP (OR MS21920-21)
8	14	MS20601AD4W8	RIVET (OR NAS9302B-4-8)
9	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947-100, TYPE II, CLASS 2 ADHESIVE)

GENERAL NOTES:

- 1) MATERIAL: MANUFACTURED FROM D6001-105
FINISHED LENGTH = 93.18±0.020
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 005 4.2
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- 6) IDENTIFICATION: SCRIBE DART PART NUMBER "D206-667-141" AND BATCH NUMBER ON INSIDE OF CUFF USING VIBRATING STYLUS.
- 7) WEIGHT: 11.3 lbs
- 8) PART IS SYMMETRIC ABOUT CENTERLINE.
- 9) RUN CUTTER OFF PART WHERE INDICATED. BLEND OUT EDGE LONGITUDINALLY, TRANSITION SHOULD BE SMOOTH.
- 10) BEND PROGRESSIVELY WITH A MINIMUM OF 12 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
- 11) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- 12) INSTALL D2891-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 13) INSTALL MS21920-20 CLAMPS (OR -21) WITH D3595-063-395 RUBBER CUSHIONS TO SECURE THE D2891-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMP MECHANISMS ARE LOCATED ON CROSSTUBE SUPPORTS.
- 14) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 15) TORQUE CLAMPS 80 TO 100 IN.-LB. ENSURE AT LEAST 1.5 THREADS ARE SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT

WITHOUT NOTICE
WORK ORDER
NO. 83702 M4J

12/04/24

DEO ATTACHED

OCW#11-615
11.07.26

UNDER REVIEW

RELEASED
06/11/12/14/16

C	REVISE GENERAL NOTES/PART LIST (ZN D7-1); REORGANIZED VIEWS AND REFORMATTED DRAWING TO CURRENT STANDARDS. D3595-063-395 WAS D2856-400-694 (ZN D6-2 & A5-2); REMOVED REF. & ADD TOLERANCES (ZN C4-3, C5-3 & D3-3); RELOCATED FLAG #6 (ZN A8-3) PER NCR 210; MOVED TURNING DETAIL & UPDATED TOLERANCE TO SHEET 4.	RF	08.11.06
B	ADD HOLES AND NUT PLATES FOR COMPATABILITY WITH BHT/AA SKUDTUBES	PH	05.07.26
A	NEW ISSUE	CP	00.11.17
REV.	DESCRIPTION	BY	DATE
DESIGN	RF	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA DRAWING NO. REV. C D206-667-141 SHEET 1 OF 4 TITLE SCALE CROSSTUBE ASS'Y (206B HIGH FWD) NTS <small>COPYRIGHT © 2000 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSES OR COPIED OR REPRODUCED IN ANY FORM OR BY ANY MEANS WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.</small>	
DRAWN	RF		
CHECKED	RF		
MFG. APPR.	RF		
APPROVED	RF		
DE APPR.	RF		
DATE	08.11.06		

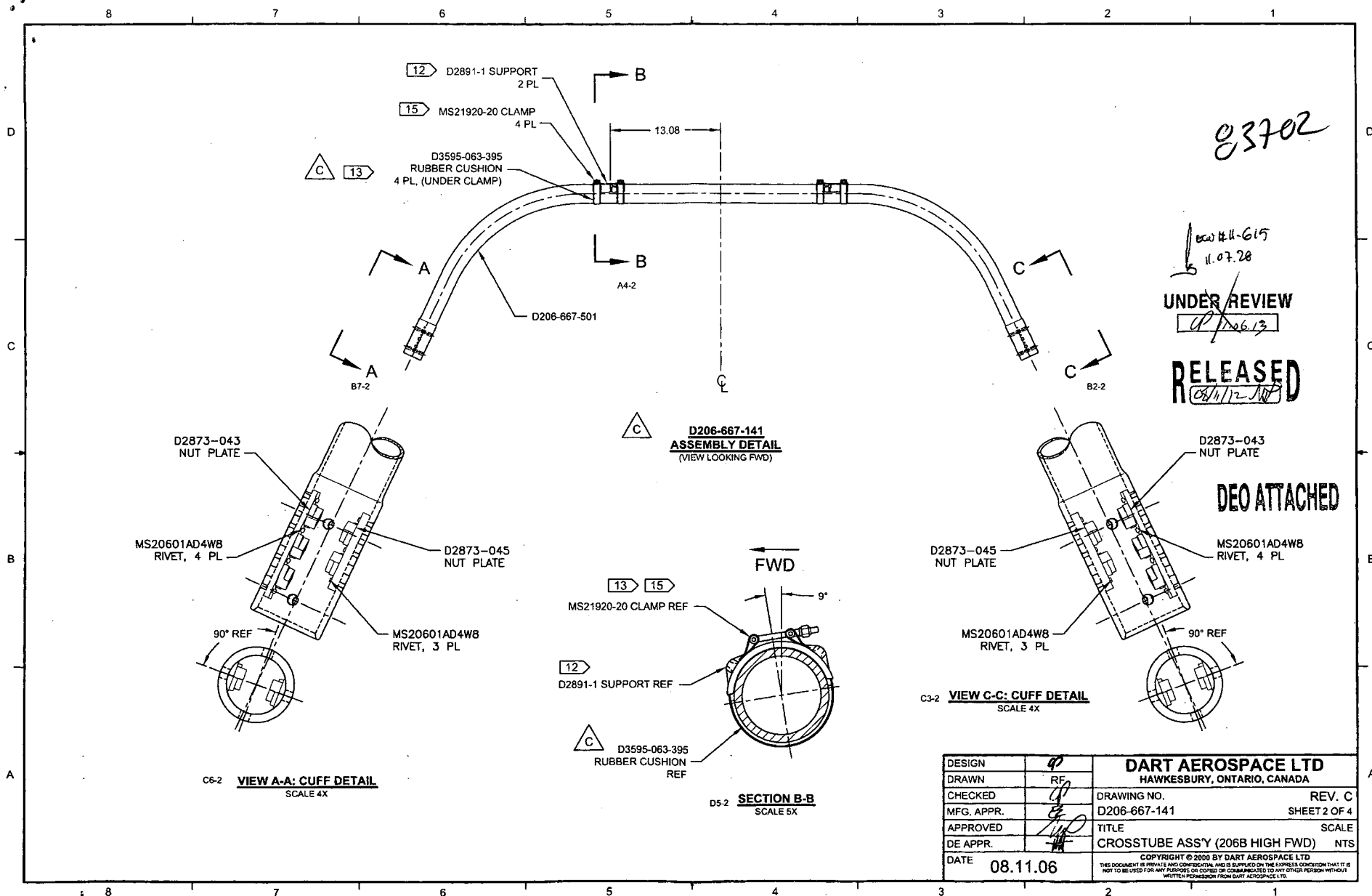
W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries



W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

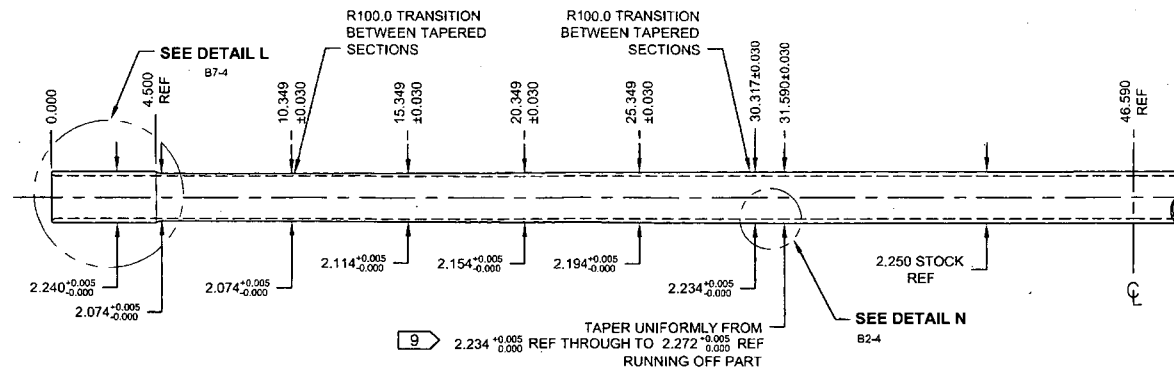
W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

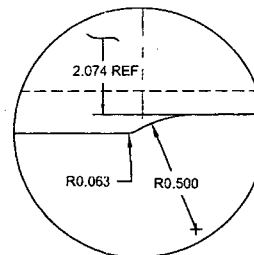
Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

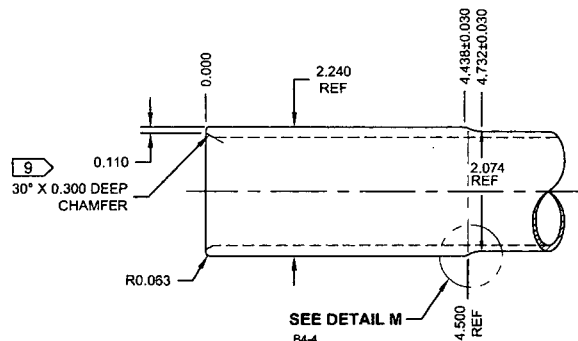
NOTE: Date & initial all entries



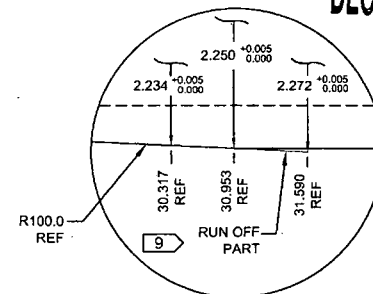
TURNING DETAIL



**DETAIL M:
CUFF TRANSITION**
NOT TO SCALE



**DETAIL L:
CROSSTUBE CUFF**
NOT TO SCALE



**DETAIL N:
TAPER RUN-OFF**
NOT TO SCALE

DESIGN	97	DART AEROSPACE LTD	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	JP	DRAWING NO.	REV. C
MFG. APPR.	JP	D206-667-141	SHEET 4 OF 4
APPROVED	JP	TITLE	SCALE
DE APPR.	JP	CROSSTUBE ASS'Y (206B HIGH FWD)	NTS
DATE	08.11.06	COPYRIGHT © 2000 BY DART AEROSPACE LTD	
THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR CORPUS OR DISSEMINATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD			

83702

11.07.10

UNDER REVIEW

08/11/06

DEO ATTACHED

RELEASED
08/11/06

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

DRAWING NO. D206-667-141	TITLE CROSSTUBE ASS'Y (206B HIGH FWD)	REV. C	DART AEROSPACE LTD ENGINEERING ORDER		D.E.O. NO. D206-667-141-C-1	SHEET NO. SHEET 1 OF 1	SCALE NTS
DRAWN <i>92</i>	CHECKED <i>ASS</i>	MFG. APPR. <i>MD</i>	APPROVED <i>MD</i>		DE APPR. <i>MD</i>		
DATE 11.07.15	DATE 11.07.20	DATE 11.07.21	DATE 11/07/21		DATE 11.07.21		

PURPOSE:

REPLACE MAGNOBOND WITH PROSEAL.

CHANGE:

IS:

Item	Qty -141	Part Number	Description
9	A/R	PROSEAL 890 B-2	SEALANT, AMS-S-8802 CLASS B-2

WAS:

9	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947-100, TYPE II, CLASS 2 ADHESIVE)
---	-----	----------------	---

NOTE 12 & 15, SHEET 1 IS AMENDED AS FOLLOWS:

IS:

- 12) TO INSTALL D2891-1 SUPPORT: ABRASE MATING SURFACE OF SUPPORT AND CROSSTUBE WITH 180-GRIT SANDPAPER AND REMOVE RESIDUE WITH MEK (OR EQUIVALENT). APPLY A 0.04" TO 0.07" THICK LAYER OF PROSEAL 890 CLASS B-2 (OR AMS-S-8802 CLASS B-2) SEALANT TO MATING SURFACE OF SUPPORT.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING. **PRIOR TO PACKAGING, RE-CHECK TORQUE ON CLAMPS AFTER PROSEAL 890 SEALANT HAS CURED FOR 72 HOURS.**

WAS:

- 12) INSTALL D2891-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

RELEASED
2011-07-28
MD

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries



LIQUID PENETRANT TEST REPORT

P- 05648

CLIENT

ATTENTION

ADDRESS

PROJECT

ITEM(S) EXAMINED

DATE

ACUREN JOB NO.

PO/WO NO.

WORK LOCATION

ACCEPTANCE STD.

PAGE

OF

TIME

AM

PM

JOB DESCRIPTION

PROCEDURE NO. LT-002 REV./DATE 2009

TECHNIQUE NO. LT-002 REV./DATE 2009

PART NO.

MATERIAL ALUMINUM THICKNESS N/A

SCOPE

TEST DETAILS

METHOD

☒ FLUORESCENT☐ VISIBLE☒ WATER WASH☐ SOLVENT REMOVABLE☐ POST EMULSIFIED

FAMILY BRAND

MAGNAFLUX

BLACK LIGHT S/N 13798

☒ OUTPUT > 1000 μ W/cm²☐ AMBIENT < 2 fc

PENETRANT

ZL-67

MINIMUM DWELL TIME

45

MIN.

LIGHTING EQUIP.

☐ FLASHLIGHT☐ TROUBLELIGHT☐ OUTPUT > 100 fc @ SURFACE

PENETRANT REMOVER

H₂O

MINIMUM DRY TIME

>10

MIN.

OTHER

DEVELOPER

SKD-82

MINIMUM DWELL TIME

30

MIN.

LIGHT METER S/N 1098866

CAL DUE DATE 01/28/12

DEVELOPER TYPE

☒ NON AQUEOUS☐ AQUEOUS☐ DRY

TEST SURFACE

SURFACE CONDITION

☐ AS GROUND☐ AS WELDED☐ MACHINED☐ SHOT BLASTED☒ CLEAN BARE METAL

SURFACE TEMPERATURE

☐ < -4°C/ 20°F☐ -4°C/ 20°F TO 10°C/ 50°F☒ 10°C/ 50°F TO 52°C/ 125°F☐ > 52°C/ 125°F

RESULTS-

☐ METRIC ☐ IMPERIAL

ITEM	COMMENTS	ACCEPT	REJECT
1	ATTN: BIRD W.O.I.D 83249	✓	
2	TUBE W.O.I.D 83735	✓	
3	CROSSTUBE FWD W.O.I.D 83703	✓	
4	" FWD W.O.I.D 83702	✓	
5	" FWD W.O.I.D 82729	✓	
6	" FWD W.O.I.D 82728	✓	
7	" AFT W.O.I.D 83184	✓	
8	" AFT W.O.I.D 83185	✓	
9	" AFT W.O.I.D 82114	✓	
10	" AFT W.O.I.D 82113	✓	

NO RELEVANT INDICATION WAS DETECTED AS PER

APPLICABLE STANDARD

Scope of Services

The agreement of Acuren Group Inc. to perform services extends only to those services provided for in writing. Under no circumstances shall such services extend beyond the performance of the requested services. It is expressly understood that all descriptions, comments and expressions of opinion reflect the opinions or observations of Acuren Group Inc. based on information and assumptions supplied by the owner/operator and are not intended nor can they be construed as representations or warranties. Acuren Group Inc. is not assuming any responsibilities of the owner/operator and the owner/operator retains complete responsibility for the engineering, manufacture, repair and use decisions as a result of the data or other information provided by Acuren Group Inc. In no event shall Acuren Group Inc.'s liability in respect of the services referred to herein exceed the amount paid for such services.

Standard of Care

In performing the services provided, Acuren Group Inc. uses the degree, care and skill ordinarily exercised under similar circumstances by others performing such services in the same or similar locality. No other warranty, expressed or implied, is made or intended by Acuren Group Inc.

SIGNATURES

CLIENT REPRESENTATIVE

TECHNICIAN (SIGNATURE):

NAME (PRINT):

Matthew Morlock

PRINT

SIGNATURE

Matthew Morlock

WES BIERER

1ST TECHNICIAN2ND TECHNICIAN

CGSB LEVEL

SNT LEVEL

CGSB LEVEL

SNT LEVEL

CGSB REG. No.

3049

CGSB REG. No.

DTR # E84955

REPORT

REVIEWED BY:

NAME

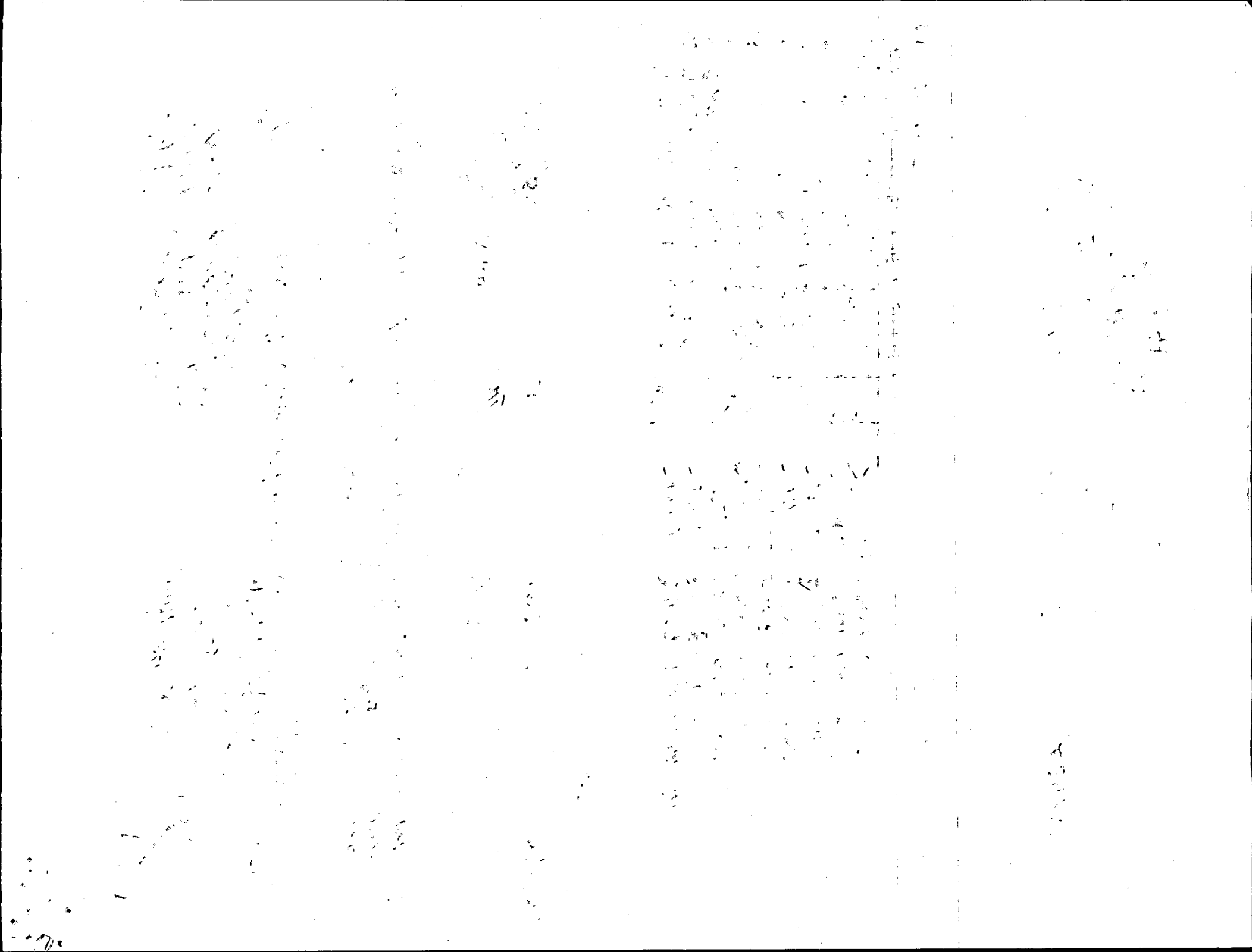
INITIALS

WHITE - CLIENT COPY

CANARY - OFFICE COPY

PINK - TECHNICIAN COPY

GOLD - OFFICE COPY





E-84955

Form dated September 2010

Client: JART BIOSPACE
Contact: LYDA, CHARLIE, MATT
Location: 1370, ABERDEEN ST., HAWKESBURY, ON
Description: PT wet Flu
Report #'s: P-05648

Job #: _____
Day: Sun Mon Tues
P.O. #: _____
Vehicle # 636

Date: MAY-04-2002
 Wed Thurs Fri Sat
 W.O #: 188-12-C0121
 Camera #:

[illegible]

WELD INSPECTION SUMMARY

WELD INSPECTION SUMMARY																		
Weld Diameter										Long Seam				Circ. Seam				
Schedule/Thickness										Thickness				Thickness				
Quantity										Lineal Ft.				Lineal Ft.				

Film: _____ Pcs. 2 ¾ x 17"

_____ Pcs. 3 ½ x 17"

_____ Pcs. 4 ½ x 17"

_____ Pcs. 14" x 17"

_____ Pcs.

Re-billable expenses:

Equipment charges:

Client Representative:

Arthur Murdoch

Consumables (cans / litres):	UT	3	PT	MT
---------------------------------	----	---	----	----

ACUREN 1-877-299-2857

Cambridge, ON	(519) 622-3112 • Fax (519) 622-1326
Cantley, QC	(819) 360-0685 • Fax (819)-827-3513
Cornwall, ON	(613) 931-1261 • Fax (613) 931-2777
Gaspé, QC	(418) 392-3618 • Fax (418) 392-4114
Halifax, NS	(902) 443-4448 • Fax (902) 445-5090
Jonquiere, QC	(418) 542-8273 • Fax (418) 542-5494
Mississauga, ON	(905) 673-9899 • Fax (905) 673-8394
Montreal, QC	(450) 492-3399 • Fax (450) 492-5682
North Bay, ON	(705) 840-8107 • Fax (705) 476-6683
Oakville, ON	(905) 825-8595 • Fax (905) 825-8598
Pickering, ON	(905) 839-0015 • Fax (905) 839-5641
Port Elgin, ON	(519) 389-6797 • Fax (519) 389-6799
St. John's, NL	(709) 753-2100 • Fax (709) 753-7011
Sarnia, ON	(519) 336-3021 • Fax (519) 336-8220
Sherbrooke, QC	(819) 620-5456 • Fax (819) 346-6828
Sudbury, ON	(705) 522-1849 • Fax (705) 522-9926
Thunder Bay, ON	(807) 475-4240 • Fax (807) 577-2017
Timmins, ON	(705) 365-8313 • Fax (705) 267-2855
Val D'Or, QC	(819) 856-6789 • Fax (819) 825-9564

NOTES:

NOTES:	

SCOPE OF SERVICES

The agreement of Acuren to perform services extends only to those services specifically provided for in writing. Under no circumstances shall such services extend beyond the performance of the requested inspection of specific equipment provided for in writing and the preparation of reports or similar documents. Any descriptions, statements, comments or expressions made reflect the opinion or observations of the Acuren examiner based solely upon data available at the time, and are not intended, nor can they be construed, as representations or warranties as to the actual circumstances. Acuren does not assume any responsibilities of the owner/operator, and the owner/operator retains complete responsibility for all engineering, repair and use decisions.

STANDARD OF CARE

In performing the services provided, Acuren shall use the degree of care and skill ordinarily exercised under similar circumstances by others performing such services in the same or similar locality. ***No other warranty, expressed or implied, is made or intended by Acuren, and all other warranties are expressly disclaimed.*** In the event of any breach of this warranty, Acuren's sole and exclusive obligation will be to correct or re-perform the deficient service or, at Acuren's option, to refund the amount paid for the deficient service.

LIMITATIONS OF LIABILITY

Nothing in this agreement shall be construed to mean that Acuren assumes any liability on account of injury to persons or property, including death, except and only to the extent those directly caused by the willful or negligent misconduct of Acuren in the context of performing the requested services. In no event shall Acuren's aggregate liability for any reason, in connection with any claim asserted, exceed the amount paid for the services in question. Acuren shall not be held responsible or liable for any loss, damage or delay caused by accidents, strikes, fires, floods, or other circumstances or causes beyond Acuren's control, including actions taken or not taken by the owner/operator or other third parties. In no event shall Acuren be liable for indirect, incidental, special, punitive, or consequential damages including, without limitation, damages relating to reputation, lost profits, goodwill, downtime, loss of use, business interruption or other economic loss.

OTHER

Unless otherwise agreed in writing, the following terms shall apply to this agreement. Payment terms shall be payment in full within 30 days. Acuren reserves the right to charge interest at a rate of 12% per year on outstanding accounts. Acuren also reserves the right to charge for any extra costs that are incurred as a result of delays, cancellations, or postponements resulting from the client's instructions, lack of instructions or mistakes for which Acuren is not responsible. The fees quoted for in this agreement exclude all costs of re-inspection or abortive visits. The client will be notified of such costs as and when they occur, and the costs will be added to the contract price. Film that is not accepted by the client when the report is issued will be disposed of by Acuren.

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector
12.05.03	200/ 210	Apply clear coat to entire of outside surface of crastube, except mask off area of support.				CP 12.05.04 PS10472	17/05/04

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

REFERENCE ONLY

5.0 PARTS LIST

5.1 HIGH GEAR CROSSTUBES

Item	Qty -101	Qty -201	Qty -103	Qty -203	Qty -105	Qty -205	Part Number	Description
	X						D206-667-101	CROSSTUBE INSTALLATION, 206A/B HIGH FWD
		X					D206-667-201	CROSSTUBE INSTALLATION, 206A/B HIGH AFT
			X				D206-667-103	CROSSTUBE INSTALLATION, 206L/L-1/L-3/L-4 HIGH FWD
				X			D206-667-203	CROSSTUBE INSTALLATION, 206L/L-1/L-3/L-4 HIGH AFT
					X		D407-667-105	CROSSTUBE INSTALLATION, 407 HIGH FWD
						X	D407-667-205	CROSSTUBE INSTALLATION, 407 HIGH AFT
1	1						D206-667-141	CROSSTUBE ASSEMBLY, 206A/B HIGH FWD
2		1					D206-667-241	CROSSTUBE ASSEMBLY, 206A/B HIGH AFT
3			1				D206-667-143	CROSSTUBE ASSEMBLY, 206L/L-1/L-3/L-4 HIGH FWD
4				1			D206-667-243	CROSSTUBE ASSEMBLY, 206L/L-1/L-3/L-4 HIGH AFT
5					1		D407-667-145	CROSSTUBE ASSEMBLY, 407 HIGH FWD
6						1	D407-667-245	CROSSTUBE ASSEMBLY, 407 HIGH AFT
10	*2	*2	*2		*2		D2891-1	SUPPORT
11				*2			D2892-1	SUPPORT
12						*1	D2894-1	SUPPORT
13	*4	*4	*4		*4		D3595-063-395	RUBBER CUSHION
14				*4			D3595-063-450	RUBBER CUSHION
15						*2	D3595-075-430	RUBBER CUSHION
16	*4	*4	*4		*4		MS21920-20	CLAMP
17				*4		*4	MS21920-22	CLAMP
18						*2	MS21920-25	CLAMP (OR MS21920-24)
19	4	4	4		4		AN5-32A	BOLT
20				4		4	AN5-34A	BOLT
21	4	4	4	4	4	4	MS21042L5	NUT (OR MS21042-5)
22	8	8	8	8	8	8	NAS1149C0563J	WASHER (OR AN960JD516)
23						*2	D3190-1	CHAFING SHIELD
40	*2		*2	*2	*2	*2	D2873-043	NUT PLATE
41	*2		*2	*2	*2	*2	D2873-045	NUT PLATE
42		2					D2872-043	NUT PLATE
43		2					D2872-045	NUT PLATE
44	10		10				AN5-7A	BOLT
45		10		10	10	10	AN5-10A	BOLT
46	4	10	4		4		AN5-30A	BOLT
47				4		4	AN5-32A	BOLT
48			12				AN970-4	WASHER (OPTIONAL)
49		6					MS21042L5	NUT (OR MS21042-5)
50	10	12	10	10	10	10	NAS1149C0563J	WASHER (OR AN960JD516)
60		1					D3039-3	CENTER DRILL (TOOLING, NOT INSTALLED)

*REFERENCE ONLY. PARTS ARE INCLUDED IN D206-667-141/-143/-241/-243 & D407-667-145/-245
ASSEMBLIES ABOVE

• COPYRIGHT © 2001 BY DART AEROSPACE LTD. •
THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED
OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.

Revision: D

Date: 11.05.01